Appl. No. 10/811,703
Paper dated: July 22, 2004

Amendments to the Claims:

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (amended) ~~An~~ A wavelength division multiplexed optical transmission system comprising:

~~an~~ a plurality of optical ~~transmitter~~ transmitters configured to transmit ~~at least one~~ a plurality of different signal ~~wavelength~~ wavelengths and [[a]] at least one tuning wavelength;

~~an~~ a plurality of optical ~~receiver~~ receivers, each including an optical filter having a filter bandwidth including the at least one signal wavelength and a percentage of at least one of the at least one tuning wavelength, and an optical to electrical signal converter configured to receive the at least one signal wavelength from said filter;

a first tuning optical to electrical converter configured to receive a first portion of the tuning wavelength ~~stopped~~ reflected by said filter;

a second tuning optical to electrical converter configured to receive a second portion of the tuning wavelength passed by said filter; and,

a filter controller configured to tune the filter bandwidth based on the relative proportion of first and second portions of the tuning wavelength provided to the first and second tuning optical to electrical converters.

Claims 2-29 (cancelled)

30. (new) The system of claim 1, wherein said filter includes a Bragg grating configured to reflect the at least one signal wavelength and the first portion of the tuning wavelength and transmit the second portion of the tuning wavelength.

31. (new) The system of claim 30, wherein said Bragg grating is configured to reflect and transmit 50% of the tuning wavelength.

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32. (new) The system of claim 1, wherein said filter includes a Bragg grating configured to transmit the at least one signal wavelength and the first portion of the tuning wavelength and reflect the second portion of the tuning wavelength.

33. (new) The system of claim 1, wherein said filter controller includes a temperature controller configured to thermally tune said optical filter.

34. (new) The system of claim 1, wherein said filter controller includes a strain controller configured to tune the optical filter by varying at least one of compressive strain and tensile strain applied to said filter.

35. (new) The system of claim 1, wherein said transmitter includes an optical source providing optical energy at a carrier wavelength, and said transmitter is configured to transmit one signal wavelength at the carrier wavelength and the tuning wavelength on a subcarrier wavelength of the optical source.

36. (new) The system of claim 1, wherein said transmitter includes an optical source providing optical energy at a carrier wavelength, and said transmitter is configured to transmit at least one signal wavelength on a subcarrier wavelength of the carrier wavelength and the tuning wavelength on the carrier wavelength.

37. (new) The system of claim 1, wherein said filter has a filter bandwidth including a plurality of signal wavelengths;

said signal converter is configured to down-convert the plurality of signal wavelengths to a corresponding plurality of electrical signal frequencies.

38. (new) The system of claim 1, wherein each of at least one of the plurality of optical transmitters is configured to transmit only one signal wavelength.

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39. (new) The system of claim 1, wherein each of at least one of the plurality of optical transmitters is configured to transmit a plurality of signal wavelengths and at least one tuning wavelength.

40. (new) The system of claim 1, further comprising at least one amplifier between the transmitters and the receivers.

41. (new) A wavelength division multiplexed optical transmission system comprising:

a plurality of optical transmitters configured to transmit a plurality of signal wavelengths and at least one tuning wavelength;

a plurality of optical receivers, each including an optical filter having a filter bandwidth including the at least one signal wavelength and a percentage of the tuning wavelength and an optical to electrical signal converter configured to receive the at least one signal wavelength from said filter;

a tuning optical to electrical converter configured to receive a first portion of the tuning wavelength from said filter; and,

a filter controller configured to tune the filter bandwidth based on the first portion of the tuning wavelength power and a tuning wavelength set point power.

42. (new) A method of transmitting and receiving information, comprising:

transmitting the information via a plurality of different optical signal wavelengths;

transmitting at least one tuning signal via at least one tuning wavelength;

filtering the at least a portion of the information and the tuning signal with an optical filter;

converting a portion of the tuning signal into an electrical tuning signal;

tuning the optical filter in response to the electrical tuning signal; and

converting the at least a portion of the information into an electrical information signal.

43. (new) The method of claim 42, wherein filtering the information is selected from a group consisting of reflecting the information with the optical filter and passing the information through the optical filter.

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44. (new) The method of claim 42, wherein filtering the tuning signal is selected from a group consisting of reflecting a portion of the tuning signal with the optical filter, and passing a portion of the tuning signal through the optical filter.

45. (new) The method of claim 42, wherein tuning the filter includes tuning the filter to maintain a predetermined electrical tuning signal.

46. (new) The method of claim 45, wherein tuning the filter includes tuning the filter to maintain a first electrical tuning signal equal to a second electrical tuning signal.

47. (new) The method of claim 45, wherein tuning the filter includes tuning the filter to maintain the electrical tuning signal within a predetermined range.

48. (new) The method of claim 42, further comprising amplifying the plurality of different optical signal wavelengths and the at least one tuning signal.

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